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<b>(21) International Application Number:</b> PCT/US98/02758 <b>(22) International Filing Date:</b> 13 February 1998 (13.02.98)  <b>(30) Priority Data:</b> 08/800,664      14 February 1997 (14.02.97)      US  <b>(71) Applicant:</b> VENTANA GENETICS, INC. [US/US]; Suite 201, 421 Wakara Way, Salt Lake City, UT 84108 (US).  <b>(72) Inventors:</b> KAMB, Carl, Alexander; 1103 East 600 South, Salt Lake City, UT 84102 (US). CAPONIGRO, Giordano, M.; 170 North M Street, Salt Lake City, UT 84103 (US).  <b>(74) Agents:</b> SHUSTER, Michael, J. et al.; McCutchen, Doyle, Brown & Enersen, Three Embarcadero Center, San Francisco, CA 94111 (US).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i>

**(54) Title:** METHODS FOR IDENTIFYING, CHARACTERIZING, AND EVOLVING CELL-TYPE SPECIFIC CIS REGULATORY ELEMENTS

**(57) Abstract**

The invention provides methods for efficient and rapid identification of cis-acting nucleic acid sequences that act in a cell-type specific manner to stimulate or repress the expression of linked genes or other neighboring sequences. The invention also provides methods for evolving novel regulatory sequences by in vitro manipulation of naturally occurring or synthetic cis-acting nucleic acid sequences followed by screening and counterscreening steps. Furthermore, the invention provides methods for determining the mechanism by which cell-type specific cis regulatory sequences confer cell-type specific expression. Also provided are diagnostic methods based on the use of cell-type specific cis regulatory sequences.